

## Financial Literacy among Farmers in Punjab: Implications for Farm Management and Financial Behavior

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### Abstract

Finance is crucial for all sectors, indicating management efficiency. While India has improved general literacy, financial literacy beyond basics could enhance understanding of farm finance. Farming requires entrepreneurial skills, with farm management central to farm finance. Adequate farm finance enables the adoption of relevant technologies, influencing farm finance management, financial behaviour, and decisions. This research paper investigates the financial literacy of farmers in the study region, how it impacts their financial conduct, and strategies to enhance farmers' access to formal financing options in Punjab, India. Additionally, the paper examines the influence of financial literacy levels and the financial inclusion efforts of the Union and State governments on farm finance management and behaviour. The study employed a mixed-methods approach, with the researcher gathering primary data through informal interviews with farmers in three villages of Punjab. The key findings indicate that farmers exhibit a moderate level of financial literacy and financial inclusion, suggesting that many are unaware of the full range of formal government aid tools available to them. However, basic awareness of government schemes is attributed to personal experience and word-of-mouth dissemination.

**Keywords:** Financial literacy, financial behaviour, financial inclusion, farm financial management

### 1. Introduction

The COVID-19 pandemic has prompted a rise in the nation's understanding of finance, investment, and their influence across various business domains. As the agricultural sector in India relies heavily on loans and debt, there is a need to assess farmers' knowledge of farm financing and financial management. This would provide insights into the current status and potential for improvement through increased awareness and integration of farmers into financial aspects. The study measures farm financial management by examining farmers' financial inclusion, behaviour, and literacy levels. Financial literacy, encompassing familiarity with essential concepts like the time value of money, compounding, risk diversification, and inflation, is a crucial factor in financial decision-making (Purohit & Chutani, 2022; Lusardi & Mitchell, 2017).

India possesses immense land resources, with 20 agri-climatic zones and representation of 15 major climates worldwide. The country also boasts 46 of the 60 global soil types. India is a leading producer of spices, pulses, milk, tea, cashew, and jute, and the second-largest producer of wheat, rice, fruits and vegetables, sugarcane, cotton, and oilseeds. India is home to nearly one-fifth of the world's population and has a literacy rate of approximately 80%. Regrettably, only 24% of Indians are financially literate, and Indian farmers exhibit particularly low levels of financial literacy. Three-fourths of India's population lacks understanding of the crucial need for sound financial management, which is concerning for a country reliant on economic development. However, there has been a remarkable improvement in the last eight years, with the percentage of financially literate individuals rising from 15% in 2013. Yet, owing to deficient infrastructure and poor economic conditions, rural populations in developing economies face limited access to financial services.

Education influences farmers' access to financial services, improving farm economic performance (Twumasi et al., 2022). The issues of rural indebtedness and farmer suicide in India highlight the importance of financial literacy and agricultural management among the country's farmers (Gaurav & Singh, 2012). In the farming sector, the commercialization of Indian agriculture requires the farmer to act as an entrepreneur. As a farm entrepreneur, financial management is crucial, as farm finance is a critical input for agriculture. Adequate farm finance enables the adoption of critical technologies at the appropriate time, which can influence their financial decisions and behavior.

The primary goal of this study is to see how financial literacy affects farm financial management and financial behavior, with the following detailed objectives:

- To determine the financial literacy levels of Indian farmers.
- To investigate the effect of financial literacy on farm financial management.
- To determine the impact of financial literacy on farmers' financial behaviour.
- To identify ways to increase farmers' access to formal financing options in India.

## 2. Review of Literature

Different research studies have dwelled into the financial literacy and financial behavior of farmers. Different research studies carried out for Indian farmers, particularly on the areas of Punjab, Gujrat, Tamilnadu have revealed low to moderate levels of financial literacy amongst the farmers (Gaurav & Singh, 2012; Ravikumar et al., 2013; Aggarwal et al., 2014). Financial literacy studies in other developing nations also reveal a similar trait (Widhiyanto et al., 2018; Lakkanawanit & Dungsripop, 2018; Santoso et al., 2020). Research works have focused on understanding the impact of parameters such as location, age, education levels (Gaurav & Singh, 2012) on financial literacy of farmers. Many studies have found a positive impact of financial literacy on farm management and financial behavior, and thereby the farmer's income (Guo et al., 2023).

Shreenivasan & Vajjayanthi (2012) made an endeavour to understand and recognize the situation with financial inclusion (FI) among ranchers in distinguished provincial pockets. The quantity of Savings/Credit accounts, the quantum of Savings/investment funds penchant among different variables have been considered. Logical inconsistency to expectations FI is affirmed to be more common among the farmers with land than land less farmers. Michael et al. (2018) utilized Spellbinding and inferential insights to dissect the essential information

gathered utilizing organized survey (from 140 provincial cultivating families). Discoveries from the review have shown that, 90 % of the respondents were male, for the most part instructed (70 %) and wedded (89 %) participating in cultivating as their essential occupation movement (around 81 %) with a normal homestead size of 2.47 hectares.

Müller & Theuvsen (2015) utilized affinity score matching strategies to reveal that ranchers with a more elevated level of monetary proficiency appear to help more from standard reception than those with lower levels of monetary proficiency. Ugwuja & Onwuachu (2020) analyzed the homestead monetary education levels of poultry ranchers in Idemili South Local Government Area of Anambra State in Nigeria. It explicitly portrayed the financial attributes of poultry ranchers, surveyed the degree of monetary proficiency among poultry ranchers, and dissected the variables impacting the degree of monetary education among the poultry ranchers. Information was gathered with the guide of organized poll and oral meeting technique from an aggregate of 80 respondents. Kumar & Gupta (2019) studied the relationship between different demographical factors and monetary incorporation among the ranchers. A study of 360 ranchers across Prayagraj region was directed, this review viewed that as 71.4% of ranchers had his ledgers while 23.6% of ranchers were effectively utilizing their financial balances in beyond 90 days and just 10.6 % of ranchers were taken credit from banks or other formal monetary foundations.

Twumasi et al.(2021) investigated the factors of financial literacy (FL) and its impact on access to financial services (AFS). They found that FL is influenced by the age, gender, education, asset ownership, homeownership, and economics education of the household heads, according to the findings. Further, FL has a substantial and a positive relationship with AFS.

Sanglay et al.(2021) studied the financial literacy and income management techniques of rice farmers in the Philippines . The findings revealed that respondents' age, educational attainment, and monthly income all have a significant impact on their financial literacy in terms of attitude, but gender, educational attainment, and monthly income all have a significant impact on financial literacy in terms of conduct.

The majority of research in this area has focused on the impact of financial literacy on direct financial decisions made by farmers, but there is little information on the impact on farm management and financial behavior displayed by farmers. This study was carried out to investigate the role of financial literacy in improving farm financial management and farmer financial behavior by measuring existing levels of financial literacy and awareness amongst farmers in the 3 villages of Punjab.

### **3. Research Methodology**

#### **3.1 Data Collection**

The following sources were used in the study:

Primary sources: Informal interviews and questionnaires distributed to farmers to gain a thorough understanding of their knowledge and financial behaviour in relation to the variables under study. Research is being conducted through articles and papers in order to understand the universal point of view as well as to gain reference from existing studies and breakthroughs in the field.

Area of Study: The data by way of informal interviews taken from Farmers in the villages of Chaheru, Maheru and Kaler Majri was collected.

### 3.2 Data Analysis Tools and Methods

These statistical tools have been used in this research:

Arithmetic Mean and Standard deviation: This is being used for calculating the overall response and getting one value that can be used for calculating the presence or absence of a relationship.

Multiple Regression Analysis: This is being used to get a statistically significant value to measure the impact of one factor on the other.

T-test: This is being used to get a statistically significant value to measure the impact of one factor on the other.

### 3.3 Hypothesis

The study begins by addressing the topic with the following main hypothesis:

Financial literacy can be said to have statistically significant relation/impact/effect on farm financial management and farm productivity.

Due to financial literacy, this hypothesis has generated the following sub-major assumptions:

#### *Hypothesis 1:*

To investigate the effect of financial literacy on farm financial management.

The relationship between the variables has been established as follows:

a. The independent variables here are financial literacy and financial inclusion. The dependent variable to measure financial performance is farm financial management. The changes in the financial literacy and financial inclusion cause changes in farm financial management of farmers.

b. Financial literacy and Financial inclusion are taken as independent variables because these are the factors that would indicate the awareness that farmers have about finance and how many of the concepts and tools, they have to their aid to use in farm financial management.

c. Farm financial management is taken as dependent variable because it a relative term that can be applied to all types of farms based on their sizes and turnover to measure the financial performance of the farms.

$H_0$  = Financial literacy can be said to not have a statistically significant relation or impact on farm financial management.

$H_1$  = Financial literacy can be said to have a statistically significant relation or impact on farm financial management.

#### *Hypothesis 2:*

To investigate the effect of financial literacy on financial behaviour.

The relationship between the variables has been established as follows:

a. The independent variables here are financial literacy and financial inclusion. The dependent variable to measure financial performance is financial behaviour exhibited by

respondents. The changes in the financial literacy and financial inclusion cause changes in financial behaviour of farmers.

b. Financial literacy and Financial inclusion are taken as independent variables because these are the factors that would indicate the awareness that farmers have about finance and how that is seen as a reflection the financial behaviour that they exhibit in their financial decisions.

c. Financial behaviour is taken as dependent variable because it a relative term that can be applied to all types of farmers based on their financial decision-making habits as well as their attitude towards following good financing habits.

Sr. No	Domain (Financial Literacy)	Percentage %	Level of Literacy
1	Knows how to make a budget	62	Medium
2	Variable allocation for variable inputs	74	High
3	Calculation of interest due on loans	64	Medium
4	Meaning of inflation	79	High
5	Different use for short term and long-term loans	69	Medium

$H_0$  = Financial literacy can be said to not have a statistically significant relation or impact on farmers' financial behaviour.

$H_1$  = Financial literacy can be said to have a statistically significant relation or impact on farmers' financial behavior

## 4. Data Analysis

### 4.1 Financial Literacy

The least knowledge to farmers is of the concept of making budgets for various purposes- 62%. The highest amount of knowledge is with respect to the workings of inflation and resource allocation, mostly gained through experience than formal education- 79% and 74%.

The data obtained from farmers on the following parameters shows high to medium level of financial literacy. Where there is work needed to be done in terms of budgeting and simple and compound interest calculations, a fair knowledge of resource allocation, concepts like inflation and different uses of the finance available to them is present.

### 4.2. Farm Financial Management

Dimension	B	T	Level of significance
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<b>Financial Literacy</b>	<b>0.630</b>	<b>5.68</b>	<b>0.0000020</b>
<b>Financial Inclusion</b>	<b>0.326</b>	<b>3.61</b>	<b>0.0009</b>

<b>R</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>Level of significance</b>
<b>0.820</b>	<b>0.811</b>	<b>81.023</b>	0.00000000000000735

The value of R and R square indicates that the regression explains around 81% of the variation in the data. Which is a good sign as a vast amount of the data variation is explained. The p-values for individual and overall are less than 0.05 which indicate that the null hypothesis is rejected. Thus, we can say that there is a statistically significant relationship between financial literacy and inclusion of a farmer and the impact that it has on farm financial management. The positive beta and T values show that the relation is positive.

#### **4.3 Financial Behavior**

The value of R and R square indicates that the regression explains around 63% of the variation in the data. Which is a good sign as it explains a relevant amount of the data variation. The p-values for individual and overall are less than 0.05 which indicate that the null hypothesis is rejected. Thus, we can say that there is a statistically significant relationship between financial literacy and inclusion of a farmer and the impact that it has on financial behaviour of farmers. The positive beta and T values show that the relation is positive.



Dimension	B	T	Level of significance
Financial Literacy	0.34	2.23	0.03
Financial Inclusion	0.435	3.51	0.0001

R	R <sup>2</sup>	F	Level of significance
0.638	0.611	30.93	0.0000000183

#### 4.4. Financial Inclusion

Sr. No	Domain (Financial Inclusion and Awareness)	Percentage %	Level of Literacy
1	Part of some co-operative banks	68	Medium
2	Access to formal finance institutions like banks	65	Medium
3	Used any formal forms of finance like credits and loans	57	Medium
4	Avails subsidiaries or schemes made by government for farmers	85	High
5	Attended technical seminars for agriculture	52	Medium

The least inclusion of farmers is towards attending seminars and awareness programs conducted to impart new agricultural and technological knowledge-51%. The highest amount of awareness is with respect to avail the subsidiaries and schemes made by the government for the betterment of farmer's finance – 84.21%.

The data obtained from farmers on the following parameters shows high to medium level of financial inclusion and awareness. It has been observed that though there is only about 65% inclusion overall of the farmers in the financial wheel of India, there is a very high awareness of the basic schemes, subsidiaries and government offerings made, most probably through experience and word of mouth.

### 5. Major Findings

- The least knowledge to farmers is of the concept of making budgets for various purposes- 63%. The highest amount of knowledge is with respect to the workings of inflation and resource allocation, mostly gained through experience than formal education- 78 and 73%.
- There is statistically significant positive relationship present between the financial literacy plus financial inclusion of a farmer and the **Farm financial management** practices used by them in farming with ( $\beta$ , T) value of (0.63, 05.68) for financial literacy and ( $\beta$ , T) value of (0.326, 3.61) for financial inclusion.
- There is statistically significant positive relationship present between the financial literacy plus financial inclusion of a farmer and the **financial behaviour** exhibited by them in farming with ( $\beta$ , T) value of (0.34, 2.23) for financial literacy and ( $\beta$ , T) value of (0.435, 3.51) for financial inclusion
- The least inclusion of farmers is towards attending seminars and awareness programs conducted to impart new agricultural and technological knowledge-51%. The highest amount of awareness is with respect to avail the subsidiaries and schemes made by the government for the betterment of farmer's finance – 84.21%.

### 6. Conclusion and Suggestions

The existing levels of financial literacy are average at best. The farmers however have basic knowledge related to the finances of farm management. Financial literacy observed varies from education levels, indicating that not just formal education but technical seminars, experience, surrounding practices by fellow farmers influence the financial literacy levels. Media can be utilized for financial education and training (Twumasi et al., 2021). Alternatively, financial authorities and institutions can come together to design inclusive financial systems which are sensitive to informational and cognitive limitations of farmers.

Farm financial management is improved when there are higher levels of financial literacy (Widhiyanto et al., 2018) and financial inclusion over self-taught practices or methods. Financial literacy has a greater impact than inclusion. Since, financial literacy would aid in giving the farmers better and proved management techniques for improved farming. Good financial behavior has been exhibited where the financial inclusion is higher such as co-operative banks, use of government aids through subsidies and schemes as well as attendance in seminars held for their benefit. Financial literacy too has its added impact in improvement in financial behavior.

The financial inclusion of farmers is medium indicating that a large chunk of farmers has not been made aware of all the formal tools of aid made available to them by the Government of India. There is also thus, a great scope for improvement where financial institutions could gain a customer base by providing their services to the remaining non-included farmers. Mobile financial services such as mobile banking, mobile payments etc. can be considered to augment access to financial services in developing countries (Parlasca et al., 2022).

## 7. Limitations and Scope for Further Research

This research has been conducted in a smaller geographical area and on a small sample size (318 respondents) and can be replicated on wider areas by increasing the number of respondents and in different regions. Current research has been conducted using financial literacy and financial inclusion as the independent variables. Other variables could be studied that also impact management and behavior. Other than studying entire fields of work, even within agriculture, the researchers can identify and assess a smaller group like maybe Jasmine or poultry or the sugarcane industry, leading to detailed insights.

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### **Appendix: Questionnaire**

#### **Variable 1: Farm Financial Mgmt (Dependent)**

1. Farmers plan day-to-day money decisions for variable costs
2. The farmer prepares a farm budget ahead of time
3. Comparison of income and living cost
4. Record historical data such as profit losses assets etc.
5. Different budgeting according to land size and crop rotations

#### **Variable 2: Financial behavior (Dependent)**

1. Farmer has a current or savings account in any financial institution
2. Farmer focused on savings in the past year
3. Payment of bills related to farm as well as personal on time
4. Seek opportunities for diverse investments
5. Setting long term goals
6. Borrowed money in the previous year

#### **Variable 3: Financial literacy (Independent)**

1. Knows how to make a budget
2. Variable allocation for variable inputs
3. Calculation of interest due on loans
4. Understanding risk return relation
5. Meaning of inflation
6. Risk reduction techniques
7. Different use for short term and long-term loans

#### **Variable 4: Financial inclusion (Independent)**

1. Part of some co-operative banks
2. Access to formal finance institutions like banks
3. Attended technical seminars for agricultures
4. Avails subsidiaries or schemes made by government for farmers
5. Used any formal forms of finance like credits and loan.